

IN THE CLAIMS

50  
801  
A3  
1. (Amended) An optical inspection system for inspecting at least one structure on a surface of an object, said system comprising:

a first visual light source which illuminates the surface of the object and the structure with a light at a first visual frequency;

a first [laser] coherent light source which illuminates the surface of the object with a narrow coherent [laser] light beam simultaneously with illumination by the first visual light source, said [laser] coherent light beam being at a second visual frequency that is different from the first visual frequency of the visual light source, said first [laser] coherent light source being mounted off vertical on a movable mount which enables the [laser] coherent light beam to be directed over an area of interest on the surface of the object;

a color scan camera mounted vertically above the object, said camera having a first channel which captures an image of the illuminated surface of the object and the structure at the first visual frequency, and a second channel which captures a path of the [laser] coherent light beam as it strikes the surface of the object and the structure at the second visual frequency; and

a computer which determines two-dimensional structure information from the image at the first visual frequency, and determines height information for the structure from the path of the [laser] coherent light beam at the second visual frequency.

8. (Amended) The optical inspection system of claim 1 further comprising a second [laser] coherent light source mounted on a side of the object which is displaced 90 degrees from the first [laser] coherent light source, said second [laser] coherent light source illuminating the surface of the object in a path that is perpendicular to the path illuminated by the first [laser] coherent light source.

A4 9. (Amended) A method of inspecting at least one structure on a surface of an object, said method comprising the steps of:

illuminating the surface of the object and the structure with a first visual light at a first visual frequency;

Sub 001 simultaneously illuminating the surface of the object with a first narrow coherent [laser] light beam at a second visual frequency that is different from the first visual frequency, said first [laser] coherent light beam striking the surface of the object at an angle of incidence less than 90 degrees;

directing the [laser] coherent light beam in a path covering an area of interest on the surface of the object;

capturing an image of the illuminated surface of the object and the structure at the first visual frequency utilizing a first channel of a color scan camera mounted vertically above the object;

simultaneously capturing the path of the [laser] coherent light beam at the second visual frequency utilizing a second channel of the color scan camera as the [laser] coherent light beam strikes the surface of the object and the structure;